

Amendments to the Claims

Please cancel Claims 12-33 without prejudice to or disclaimer of the subject matter recited therein.

Please amend Claims 1, 2, 4, 5 and 7-10 to read as follows.

1. (Currently amended) An ink jet recording apparatus for using a recording head having a plurality of discharge apertures and a plurality of recording elements corresponding to the discharge apertures and discharging ink from the discharge apertures onto a recording medium by application of a drive signal to the recording elements, the ink jet recording apparatus comprising:

driving means for dividing the plurality of recording elements ~~among~~ into a plurality of blocks such that each block includes a predetermined number of recording elements and for sequentially driving each one of the blocks so as to discharge ink within a discharge cycle whose time period varies depending on a resolution of an image to be recorded; and

adjusting means for adjusting the drive signal applied to the recording elements based on the number of recording elements to be driven within the discharge cycle and the number of recording elements ~~contained~~ to be substantially simultaneously driven in each of the blocks sequentially driven by said driving means.

2. (Currently amended) The ink jet recording apparatus according to claim 1, wherein the adjusting means comprises:

first calculating means for calculating a the number of recording elements to be driven in the discharge cycle; and

second calculating means for calculating a the number of recording elements to be substantially simultaneously driven in each one of the plurality of blocks,

wherein said adjusting means ~~changing~~ changes a pulsewidth of a drive pulse signal applied to the recording element of the recording head based on values calculated by said first calculating means and said second calculating means.

3. (Original) The ink jet recording apparatus according to claim 1, wherein each one of the recording elements includes an electrothermal transducer that generates heat when the drive signal is applied thereto, the heat causing a bubble to be generated in the ink.

4. (Currently amended) An ink jet recording apparatus having a plurality of recording heads, each of which includes a plurality of discharge apertures arranged in rows in a direction perpendicular to a scanning direction of a recording head carriage of the ink jet recording apparatus, ~~and a~~ wherein the plurality of recording heads are arranged on the recording head carriage in a direction parallel to the scanning direction, for ~~discharging ink from the plurality of discharge apertures~~ by applying a drive signal to recording elements provided corresponding to the discharge apertures so as to discharge

ink from the plurality of recording heads onto a recording medium, the ink jet recording apparatus comprising:

driving means for dividing the plurality of recording elements of each recording head ~~among~~ into a plurality of blocks such that each block includes a predetermined number of recording elements and sequentially driving each one of the blocks so as to discharge ink within a discharge cycle whose time period varies depending on a resolution of an image to be recorded; and

adjusting means for adjusting the drive signal applied to the recording elements based on the number of recording elements of each of the recording heads to be driven within the discharge cycle and the number of recording elements ~~contained to be~~ substantially simultaneously driven in each of the blocks sequentially driven by the driving means.

5. (Currently amended) The ink jet recording apparatus according to claim 4, wherein the adjusting means comprises:

first calculating means for calculating a the number of recording elements of each recording head to be driven in the discharge cycle;

second calculating means for calculating a the number of recording elements of each recording head to be substantially simultaneously driven in each one of the plurality of blocks; and

adding means for adding a value calculated by said first calculating means and a value calculated by said second calculating means for those recording heads that are driven simultaneously,

wherein said adjusting means changes a pulsewidth of a drive pulse signal applied to each of the plurality of recording heads based on values calculated by said first calculating means and said second calculating means.

6. (Original) The ink jet recording apparatus according to claim 4, wherein at least one of the plurality of recording heads is driven at a timing different from that of the other recording heads.

7. (Currently amended) An ink jet recording method for an ink jet recording apparatus ~~using which has~~ a recording head ~~having including~~ a plurality of discharge apertures and a plurality of recording elements corresponding to the plurality of discharge apertures and ~~for discharging ink from the corresponding plurality of discharge apertures by application of~~ applies a drive signal to the recording elements to discharge ink from the recording head onto a recording medium, the ink jet recording method comprising the steps of:

dividing the plurality of recording elements ~~among~~ into a plurality of blocks such that each block includes a predetermined number of recording elements and sequentially driving each one of the blocks so as to discharge ink within a discharge cycle whose length varies depending on a resolution of an image to be recorded; and

adjusting the drive signal applied to the recording elements based on the number of recording elements to be driven within the discharge cycle and the number of recording elements ~~contained~~ to be substantially simultaneously driven in each of the blocks sequentially driven by the driving means.

8. (Currently amended) The ink jet recording method according to claim 7, wherein said step of adjusting the drive signal comprises the steps of:

calculating the number of recording elements to be driven within the discharge cycle in a first calculating step;

calculating ~~a~~ the number of recording elements to be substantially simultaneously driven in each one of the plurality of blocks in a second calculating step;
and

changing a pulsewidth of a drive pulse signal applied to the recording ~~element~~ elements of the recording head based on values calculated ~~by~~ in said first calculating ~~means~~ step and said second calculating ~~means~~ step.

9. (Currently amended) An ink jet recording method for an ink jet recording apparatus ~~using~~ which has a plurality of ink jet recording heads, each having a plurality of discharge apertures arranged in rows in a direction perpendicular to a scanning direction, wherein the plurality of recording heads are arranged in a direction parallel to the scanning direction, ~~for discharging ink from the plurality of discharge apertures by~~
~~applying~~ and applies a drive signal to recording elements provided corresponding to the

discharge apertures so as to discharge ink from the plurality of recording heads onto a recording medium, the ink jet recording method comprising:

a division step of dividing the plurality of recording elements of each recording head ~~among~~ into a plurality of blocks such that each block includes a predetermined number of recording elements;

a driving step of sequentially driving each one of the blocks so as to discharge ink within a discharge cycle whose length varies depending on a resolution of an image to be recorded; and

an adjusting step of adjusting the drive signal applied to the recording elements based on the number of recording elements of each of the recording heads to be driven within the discharge cycle and the number of recording elements ~~contained to be~~ substantially simultaneously driven in each of the blocks sequentially driven at said driving step.

10. (Currently amended) The ink jet recording method according to claim 9, wherein said adjusting ~~comprising~~ step comprises the steps of:

calculating a first number of recording elements of each recording head to be driven in the discharge cycle;

calculating a second number of recording elements of each recording head to be substantially simultaneously driven in each one of the plurality of blocks; and

adding the first number and the second number together for those recording heads that are driven simultaneously; and

changing a pulsewidth of a drive pulse signal applied to each one of the plurality of recording heads based on a sum obtained in said adding step.

11. (Original) The ink jet recording method according to claim 9, wherein at least one of the plurality of recording heads is driven at a timing different from that of the other recording heads.

Claims 12-33 (cancelled)